

THE REINSTATEMENT OF
BATHYPOLYPUS FAEROENSIS (RUSSELL, 1909)
(OCTOPODA: BATHYPOLYPODINAE)

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Abstract.—*Polypus faeroensis* Russell, 1909, is removed from the junior synonymy of *Bathypolypus arcticus* (Prosch, 1849) and is retained in *Bathypolypus* as a separate species. *Bathypolypus faeroensis* is further characterized and partially redescribed based on a female specimen from the Denmark Strait. The cephalopod type-material collected by the Fishery Cruiser *Goldseeker* and described by Russell (1909, 1922) is determined to be no longer extant and a neotype is designated for *P. faeroensis*. The systematic relationship of *Bathypolypus* Grimpe, 1921, and *Benthoctopus* Grimpe, 1921, is briefly discussed.

Russell (1909) described *Polypus faeroensis* based on two males and one female collected at a single trawl station by the *Goldseeker* in the Faeroe Channel. Russell separated this species from *P. arcticus* Prosch, 1849, by the shape of the mantle, length of the arms relative to the body, relative length of the hectocotylyzed portion of the right third arm, and dermal ornamentation. In a supplementary paper based on the same material Russell (1922) repeated his earlier description of *P. faeroensis*, gave illustrations of the radula, hectocotylus, and dermal ornamentation, and included a photograph of the dorsal aspect of the whole animal.

Robson (1932) tentatively placed *P. faeroensis* into the synonymy of *Bathypolypus arcticus* (Prosch, 1849). He noted, however, that the form described by Russell represented one extreme end of the range of variation with regard to total length, shape of the mantle, surface sculpture, and web morphology.

Jaekel (1958) regarded *P. faeroensis* as a varietal form of *B. arcticus*.

Kumph (1958) suggested that the peculiarities represented by *P. faeroensis* are within the range of variation for *B. arcticus* based on his examination of 178 specimens and retained it in synonymy.

While examining the unidentified octopod holdings of the National Museum of Natural History I encountered a large specimen resembling *Bathypolypus* from the Denmark Strait that could not be attributed to either *B. arcticus* or *B. proschi* Muus, 1962. Further study demonstrated that it was attributable to *P. faeroensis* and that a reevaluation of that taxon was required.

Measurements and indices are as defined by Roper and Voss (1983).

Bathypolypus faeroensis (Russell, 1909)

Figs. 1, 2

Polypus faeroensis Russell, 1909:446; 1922:5, pls. 1, 2, figs. 1, 4-6.—Robson, 1932:287.

Bathypolypus faeroensis.—Grimpe, 1921:300; 1922:40; 1925:93.—Robson, 1927:252, fig. 7.—Muus, 1962:11.

Octopus faeroensis.—Robson, 1926:1330.

Table 1.—Measurements (in mm) of *Bathypolypus faeroensis* (Russell, 1909).

ML—	73		Sn—	4.1	
MW—	49		WD*A—	55	
HW—	30		B—	60	61
AL—	L	R	C—	51	51
I—	163	145+	D—	48	50
II—	156	151	E—	4	
III—	142	132	gills—	9/10	
IV—	133	124	FL—	26.7	
AW—	10.2		TL—	24	

* Approximate values.

Bathypolypus arcticus (pars).—Robson, 1932:286.—Kumph, 1958:13 (non Prosch, 1849).

Bathypolypus arcticus var. *faeroensis*.—Jaeckel, 1958:565.

Material examined.—NEOTYPE, 1 female (gravid), ML = 73 mm, FFS *Walther Herwig* 630/73, 67°21.5'N, 23°30'W, 480–485 m, 140' net, 9 Sep 1973, Institut für Seefischerei und Zoologisches Museum der Universität Hamburg (on extended loan to National Museum of Natural History).

Description.—The mantle is ellipsoid in outline, bluntly pointed posteriorly and widest posterior to its midpoint (MWI 67.1) (Table 1). The head is considerably narrower than the mantle and brachial crown and is separated from both by a weak constriction (HWI 41.1) (Fig. 1a).

The mantle aperture extends about one half of the circumference of the mantle. The funnel is moderately large (FLI 36.5) and stout. It is free for slightly less than half of its length. The funnel organ is VV-shaped and acutely pointed basally. The inner and outer limbs are subequal in length. The outer limbs are broader basally than the inner ones (Fig. 2a).

The web is damaged but appears shallow (WDI 37.8) and has the formula B.A.C. = D.E.

The arms are long (ALI 66.5), moderately stout basally (AWI 14.0), and taper to short acute points. The arm order is I.II.III.IV. The web extends dorsally and ventrally down the arms almost to the tips. The biserial suckers are small (SNI 5.6) and well separated along the midportion of several arms; the 2 sucker rows are particularly widely placed, with suckers only slightly elevated.

The gills are relatively small with nine primary lamellae on the outer demibranch of one, 10 on the other.

The viscera were partially dissected. The ovary is massive and completely occupies the ventro-posterior third of the mantle cavity (Fig. 2b). Proximally the oviducts are short and appear to connect by separate pores with the ovarian membrane. The oviducal glands are large, broader than long and completely darkened. Distally the oviducts are large, stout, and curved to form an inverted J-shape. The tips are expanded into a conical swelling. The ovarian eggs are large (\bar{x} = 18 mm), with a smooth surface and a series of longitudinal lines (Fig. 2c). The eggs appear to be mature.

Midway along the esophagus is an enlarged crop that bears a prominent anterior

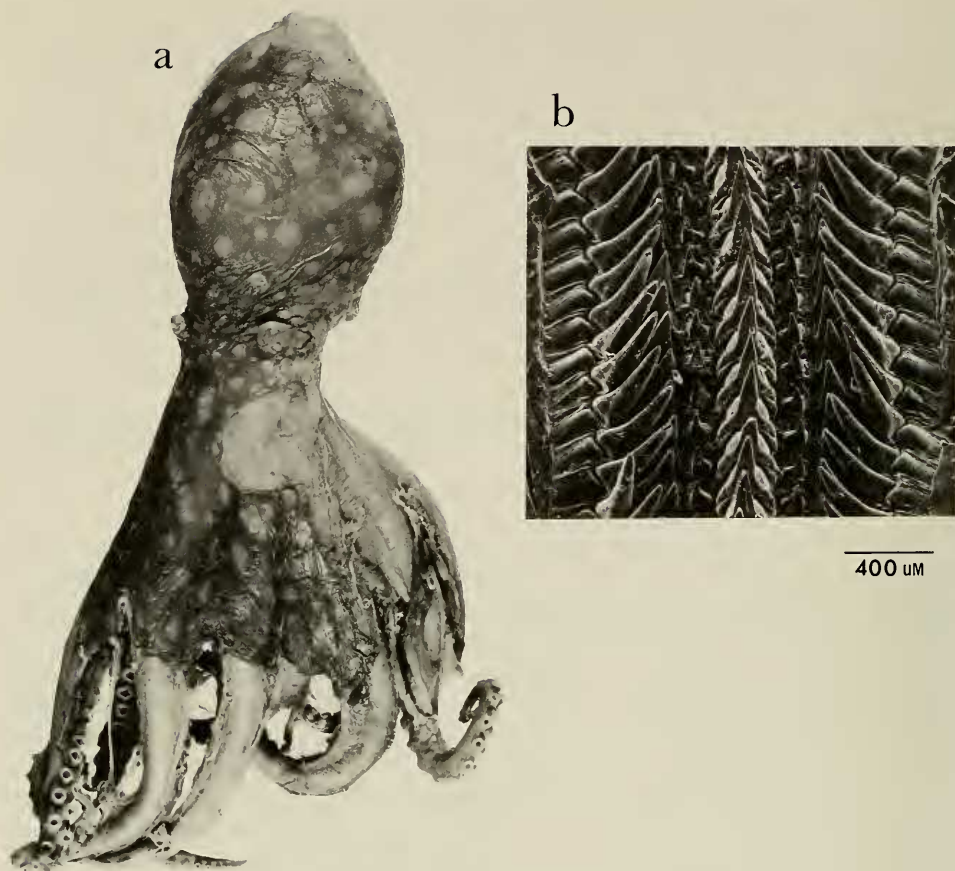


Fig. 1. *Bathypolypus faeroensis*, neotype: a, Dorsolateral whole view; b, Radula.

diverticulum (Fig. 2d). The liver is large and bulbous. When squeezed it exuded a greenish-amber colored oil.

The radula and mandibles are as figured (Figs. 1b, 2e-f). Neither is distinctive.

The color in alcohol is rust brown to purple with prominent, irregularly sized, subcircular, tan colored markings over the entire dorsal surfaces of the mantle, head, and brachial crown. These spots are loosely organized into a pattern of circlets of smaller ones surrounding a central larger one. The smaller spots are sometimes associated with a small, conical papilla.

A single, large, ocular cirrus is located above each eye. It is covered with smaller, irregular warty protuberances. Smaller wart-like papillae form an incomplete circlet around the small eyes.

Discussion. — While most closely resembling the genus *Bathypolypus*, the presence of a large and well developed diverticulum of the crop eliminated the possibility that the present specimen could be attributed to *Bathypolypus arcticus* (Prosch, 1849), *B. proschi* Muus, 1962, both from the North Atlantic, or any other recognized congener. The combination of a well developed supraocular cirrus and unicuspid rachidian further eliminated its placement in *Benthoctopus*.

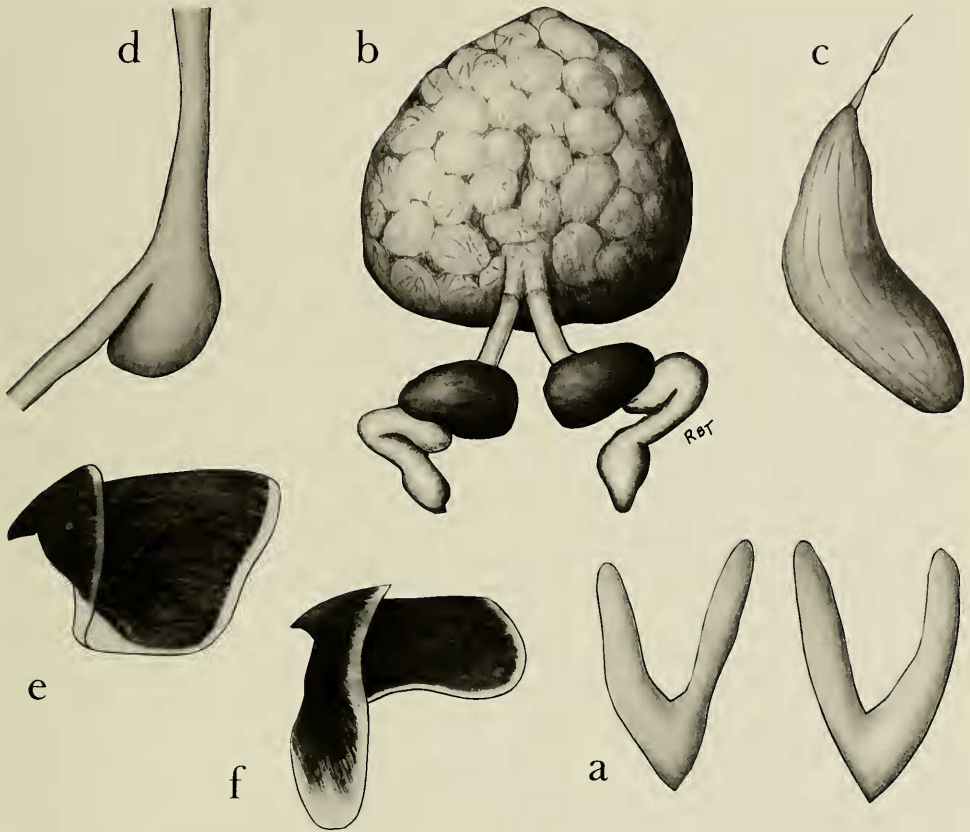


Fig. 2. *Bathypolypus faeroensis*, neotype. a, Funnel organ; b, Ovary; c, Ovarian egg; d, Esophagus with diverticulum; e, Upper mandible; f, Lower mandible.

A broader review of the literature, stimulated by this unusual combination of characters, resulted in comparison of the present specimen to *Bathypolypus faeroensis* (Russell), previously placed in synonymy of *B. arcticus* by Robson (1932) and Kumph (1958). I inquired about the location of Russell's cephalopod type-material taken by the *Goldseeker* at the Royal Scottish Museum (RSM) in the hope of obtaining the type-series of *Polypus faeroensis* for comparison with the present specimen. Dr. D. Heppell, curator of Mollusca, informed me that this material was no longer at the Aberdeen Marine Laboratory and had never been transferred to the RSM "although many of the *Goldseeker* marine invertebrates are housed here" (pers. comm., 18 Mar 1983). The types of *P. faeroensis* and those of two teuthoids described by Russell (1909: *Brachioteuthis bowmani* and *Taonidium pfefferi*) must be assumed to be lost or destroyed.

In the absence of type-material, Russell's accounts of *P. faeroensis* were critically evaluated for relevance to the present specimen. Morphometric comparison was difficult because of the small number of specimens in the syntypic series (three) and the difference in size between the present specimen (73 mm ML) and Russell's syntypes (40, 42, 48 mm ML). The more valuable characters including the relative length of the arms, length of the arms with respect to total length, web depth, web

order, funnel size and sucker size are, nonetheless, compatible. Unfortunately Russell did not report on the crop morphology. The most substantial basis for comparison is Russell's description and photograph (Russell 1922, fig. 1) of the distinctive "papillary areas" found on the dorsal surface of the mantle. These are nearly identical in size, coloration, and distribution to the *Herwig* specimen. Based on these comparisons the present specimen is attributed to *Polypus faeroensis* Russell and is designated as the neotype.

Kumph (1958) stated that the form represented by *faeroensis* was within the range of variation he determined for *Bathypolypus arcticus* based on his examination of 178 specimens. A review of his data, however, indicates that differences do exist. Kumph reported that the LLI, based on a total of 96 animals, ranged from 9.5 to 49.2, thereby encompassing the value of 12.2 for the larger and sexually mature syntype of *faeroensis* (ML = 42 mm). Only a single specimen of Kumph's had a lower value (9.5). This specimen was the smallest that he had examined (ML = 7.8) and it is certainly immature. Kumph reported that the range of LLI for mature males is 18.1 to 44.8 with a mean of 32.9. The two species can, therefore, further be distinguished on the basis of ligula length.

I concur with Robson's (1932:293) suggestion that Russell's description of the spermatophores is erroneous. Specifically Russell confused broken or pinched off segments of the sperm rope as individual spermatophores and referred to the actual whole spermatophore as a "membranous bag." Also, his assessment of the distinctiveness of the radula of *faeroensis* appears to be based on an unusual orientation of the radular teeth as seen in his figure (Russell 1922, fig. 4) and not on actual morphology.

Muus (1962) reported on several large specimens of *B. arcticus* (TL = 145–220 mm) with multicuspid rachidian teeth and small ligulas (LLI 9.3–16.9). Based on Kumph's (1958) extensive comparative study, apparently unknown to Muus, it is unlikely that these specimens are correctly identified.

Based on the generic definitions given by Robson (1927, 1932) *Polypus faeroensis* cannot be accommodated by either *Bathypolypus*, because of the size of the ligula and the presence of a crop diverticulum, or *Benthoctopus*, because of the unicuspid condition of the rachidian teeth and presence of supraocular cirri. Wirz (1955) noted that "La stricte séparation des deux genres *Benthoctopus* et *Bathypolypus* faite par Robson en 1932 est sans aucun doute injustifiée, étant donné le très petit nombre de caractères différents." Creation of a new genus for the inclusion of *faeroensis*, placement of *Benthoctopus* in the synonymy of *Bathypolypus*, or redefinition of these two genera would be premature at this time and only add to the current confusion. In lieu of these alternatives, the writer chooses provisionally to maintain *faeroensis* as a separate species in *Bathypolypus* until these genera can be reviewed and their relationship established.

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Literature Cited

- Grimpe, G. 1921. Systematische Übersicht der Nordseecephalopoden.—*Zoologischer Anzeiger* 52(12/13):297–305.
- . 1922. Systematische Übersicht der Europäischen Cephalopoden.—*Sitzungsberichte der Naturforschenden Gesellschaft zu Leipzig* 45–48:36–52.
- . 1925. Zur Kenntnis der Cephalopodenfauna der Nordsee.—*Helgoländer Wissenschaftliche Meeresuntersuchungen* 16(3):1–125.
- Kumph, H. E. 1958. A study of the *Bathypolypus arcticus-bairdii-lentus-obesus* complex of the North Atlantic (Cephalopoda, Octopoda). Master's thesis, University of Miami, 135 pp.
- Jaekel, S. G. A. 1958. Cephalopoden.—*Die Tierwelt der Nord-und Ostsee*.—Lieferung 37, 9(3): 479–723.
- Muus, B. J. 1962. Cephalopoda. The Godthaab Expedition 1928.—*Meddelelser Om Gronland* 81(5): 4–23.
- Robson, G. C. 1926. The deep-sea Octopoda.—*Proceedings of the Zoological Society of London* 50: 1321–1356.
- . 1927. Notes on the Cephalopoda. III. On the anatomy and classification of the North Atlantic species of *Bathypolypus* and *Benthoctopus*.—*Annals and Magazine of Natural History* (9) 20: 249–263.
- . 1932. A monograph of the Recent Cephalopoda Pt. II. The Octopoda (excluding the Octopodinae). London: British Museum, 359 pp., 79 text figs., 6 pls.
- Roper, C. F. E., and G. L. Voss. 1983. Guidelines for taxonomic descriptions of cephalopod species.—*Memoirs of the National Museum of Victoria* 44:48–63.
- Russell, E. S. 1909. Preliminary notices of the Cephalopoda collected by the Fishery Cruiser "Goldseeker," 1903–1908.—*Annals and Magazine of Natural History* (8) 3:446–455.
- . 1922. Report on the Cephalopoda collected by the Research Steamer "Goldseeker," during the years, 1903–1908.—*Fisheries, Scotland Scientific Investigations 1921, III* (Feb. 1922), 45 pp., 25 figs.
- Wirz, K. 1955. *Bathypolypus sponsalis* (P. et H. Fischer) espèce commune dans la partie ouest de la Méditerranée.—*Vie et Milieu* 6(1):129–147.

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